

REMARKS

Reconsideration is respectfully requested in view of the amendments and remarks herein.

Claim Rejections 35 USC 112

Claims 1-12, 14-25 and 27 stand rejected under 35 USC 112, second paragraph, as indefinite.

In Claims 1, 14 and 27, the phrase “polyolefins, including polyethylenes and polypropylenes” is considered vaguer and indefinite. Applicants removed “including polyethylenes and polypropylenes” from claim 1 and deleted the other claims.

Claims 2-12 are stated to be vague and indefinite for the reason that the claims don’t have basis for the phrase “the other polymer(s)”. Applicants have fixed the claims so that they no longer use this terminology.

Withdrawal of the rejection under 35 USC 112 is respectfully requested.

Claim Rejections – 35 USC 103

In paragraph 4 of the Action, claims 1-3, 5-7, 11, 27-29 stand rejected under 35 USC 103(a) over Robinson US 5,690,994, US 5,698,329, US 5,411,845 or US 5,660,312. In paragraph 5 of the Action, claim 10 stands rejected under 35 USC 103(a) over Robinson US 5,690,994, US 5,698,329, US 5,411,845 or US 5,770,312 as applied to claims 1-3, 5-7, 11, 27-29, and further in view of Anderson US 5,069,942.

All four Robinson patents are related. US 5,411,845 and US 5,770,312 are stated to be continuations of USSN 18,500, filed February 17, 1993. US 5,690,994 and US 5,698,329 are stated to be continuations of USSN 257,460, which eventually became US 5,770,312. Therefore, for convenience, applicants will refer to US 5,690,994 in the comments presented in this response.

Robinson ‘994 is primarily focused on light sensitive films, and describes drafting films. Robinson ‘994 mainly describes a coated film, which is stated to have excellent adhesion to photographic emulsions layers. (Abstract.) The substrate of the Robinson films can be polyethylene terephthalate film. (See, e.g., column 2, line 49.) A subbing layer can be applied over the polyester film. (See, e.g., column 8, lines 15-33.) The subbing layer polymer can be polyallylamine and/or a salt thereof. (See, e.g., column 5, lines 49-53.) In describing drafting films, Robinson states that a lacquer may be applied over the subbing layer to produce a film suitable for use as a drafting film, and the lacquer can comprise polyvinyl butyral. (See, e.g., column 10, lines 13-33.)

Robinson ‘994 is primarily focused on drafting films when describing the PVB layer, and these films are very different from the laminates useful for safety glass, e.g., glass/glass laminates and glass/polymer laminates, as in the present patent application. The amended claims focus on substantially different products than those described in the Robinson patents and, therefore, withdrawal of the rejections for this reason alone is requested.

US 5,415,942 Anderson is focused on abrasion resistant coatings for glass laminates and, thus, applicants submit that it is improper to combine the teachings of Anderson with those directed to the light sensitive or drafting films of the Robinson patents.

For the above reasons, withdrawal of the obviousness rejections based upon the Robinson patents alone or in combination with Anderson is respectfully requested.

In paragraph 6, claim 13 stands rejected under 35 USC 103(a) over Molnar et al US 6,686,012. Molnar is directed to multi-layer articles having a fluoroplastic layer. Applicants have amended claim 13 in order to clarify the nature of the invention, and amended claim 13 does not teach or suggest a structure similar to that of Molnar. Consequently, withdrawal of the rejection is respectfully requested.

Allowable Subject Matter

Applicants thank the Examiner for pointing out the allowability of original claims 4, 8-9, 12 and 14-25, if rewritten, and of claim 26.

Amendments to the Claims

The claims are amended as follows:

Applicants removed acronyms from the claims so that they are easier to read. This did not result in any changes to the claim scope.

Applicants amended “polyallylamine polymeric coating” to “polyallylamine coating” for consistency. Applicants submit that while use of “polymeric” was acceptable, it was unnecessary.

Throughout the original claims applicants used the language “that is adjacent to, and in direct contact with,” in order to describe layers that are adjacent to each other. One key feature of the invention is that the polyallylamine coating on the polyester film adheres the polyester film to the other polymer layer. Thus, using a polyallylamine coated film enables the practitioner to better bond together two interlayers, such as two ionoplast resin interlayers, or a polyvinyl butyral interlayer and an ionoplast interlayer, that previously could not be adhered as well as with the invention. Consequently, applicants have amended the claims to refer to adhering the layers. For instance, in claim 1, applicants added the phrase “wherein the polyallylamine coating adheres the polyester film to the at least one other polymeric layer.” As another example, applicants amended claim 13, applicants amended part of the claim as follows:

“wherein the ~~PRIMER~~ the first polyester film layer is additionally adjacent to and in direct contact ~~adhered to with~~”

These amendments are well supported throughout the specification, including the examples, which discuss adhesion of these layers. (See, e.g., page 2, line 30 – page 3, line 2; page 5, line 24 – page 6, line 2; page 6, line 26-page 8, line 10; the examples, etc.)

Claim 1 is amended to recite that the invention is a laminate comprising “a layer of a polyester film that has been coated with a polyallylamine polymeric coating.” Applicants replaced the phrase “at least one layer” with “a layer” to make it easier to read the claims,

particularly the dependent claims. This amendment does not alter the scope of claim 1, since the claim originally only required one such layer, but could include more than one such layer, and since use of “comprising” in the claim results in the claim still covering a laminate with more than one such layer.

Claim 1 is amended to focus the claims on the polymer being either ionoplast resin; polyurethanes; polyvinyl chlorides; polyacetals; or ethylene acid copolymers. Applicant is entitled to delete members from a Markush group, particularly as in the present invention where use of each of these polymers is well supported and they can be individually claimed in a separate dependent claim.

Claim 4 is amended to clarify the claim. Namely, the term “other polymer” does not exist in claim 1. Instead, claim 1 refers to “at least one other polymeric layer comprising a polymer selected from the group ...”. Thus, claim 4 refers to “the polymer” being the specified member from the group of polymers recited in claim 1.

Claim 13 is amended to better define the invention. The invention is a laminate having three polymer interlayers bound together by two polyester film layers that have been coated on both sides with polyallylamine coatings. The Markush group used to describe the first, second and third polymer layers is directed to polymer interlayers comprising the following polymers, which is supported as described above with respect to claim 1 (the difference being that claim 13 also claims polyvinyl butyral): polyvinyl butyral, ionoplast resin; polyurethanes; polyvinyl chlorides; polyacetals; and ethylene acid copolymers. The polyester is described as preferably having the polyallylamine coating applied to both surfaces in the paragraph bridging pages 4-5 of the specification and such an embodiment is used in the examples, as described in Example 1, page 9, lines 9-11. Specific example of this embodiment are the Glass/PVB/PRIMER/ionoplast/PRIMER/PVB/Glass laminate described at page 7, line 19 and the GLASS/PVB/PET/PVB/PET/PVB/GLASS laminate described in Example 3.

Claims 19-21 and 23-24 are amended so that the terminology has proper antecedent basis in claim 13. Specific example of the embodiment of claim 19 are the Glass/PVB/PRIMER/ionoplast/PRIMER/PVB/Glass laminate described at page 7, line 19 and the GLASS/PVB/PET/PVB/PET/PVB/GLASS laminate described in Example 3. A specific example of the embodiment of claim 21 is the Glass/PVB/PRIMER/ionoplast/PRIMER/PVB/Glass laminate described at page 7, line 19.

Claim 26 is amended so that it refers to the polyester film being coated on both sides, support for which is described above with respect to claim 13. Claim 26 is also amended to recite that the test is the 90 degree peel strength, the 90 degree peel strength is at least 15 lb/inch, and that this strength applies to the polymer layers as supported, among other places, in the paragraph bridging pages 5-6 of the application.

Claim 28 is amended so that it is independent form. The subject matter is similar to amended claim 1, except that this claim recites polyvinyl butyral in the Markush group.

Claim 29 is amended to focus on specific end-uses and new claim 30 is amended to cover some of the other end-uses.

Claims 30-32 refer to the laminate being a glass laminate and the first polymer layer being laminated to the glass. The application describes both glass-glass laminates having glass on the outside of the laminate, such as the Glass/PVB/PRIMER/ionoplast/PRIMER/PVB/Glass laminate described at page 7, line 19, and glass/polymer laminates (See, e.g., page 1, line 20 *et seq.*, and page 7, lines 29-32.).

Claims 33-34, 36, 38, 42, 50 and 59 refer to the polyester film being polyethylene terephthalate film, as supported in many places in the specification, such as page 1, line 12, and the many references to "PET" throughout the specification.

Claim 35 is similar to claim 21. A specific example of the embodiment of this claim is the Glass/PVB/PRIMER/ionoplast/PRIMER/PVB/Glass laminate described at page 7, line 19.

Claim 37 is a new claim focused on a glass laminate. It is directed to use of (a) a layer of a polyester film that has been coated with a polyallylamine coating that is adjacent to, and adhered to, (b) a polymer layer comprising a polymer selected from the group consisting of polyvinyl butyral, ionoplast resin; polyurethanes; polyvinyl chlorides; polyacetals; and ethylene acid copolymers, wherein the polymer layer is laminated to the glass. The application describes both glass-glass laminates having glass on the outside of the laminate, such as the Glass/PVB/PRIMER/ionoplast/PRIMER/PVB/Glass laminate described at page 7, line 19, and the GLASS/PVB/PET/PVB/GLASS laminate described in Example 3, and glass/polymer laminates (See, e.g., page 1, line 20 *et seq.*, and page 7, lines 29-32.).

Claims 39 and 40 are focused on the laminate having either a polyvinyl butyral or ionoplast resin interlayer, as supported throughout the specification, and in the examples.

Claim 41 is directed to a laminate comprising: (1) a first polymer layer comprising a polymer selected from the group consisting of polyvinyl butyral, ionoplast resin; polyurethanes; polyvinyl chlorides; polyacetals; and ethylene acid copolymers that is adjacent to and adhered to (2) a polyester film layer comprising a polyester film that has been coated on both sides with polyallylamine coating, wherein the polyester film layer is additionally adjacent to and adhered to (3) a second polymer layer comprising a polymer selected from the group consisting of polyvinyl butyral, ionoplast resin; polyurethanes; polyvinyl chlorides; polyacetals; and ethylene acid copolymers. The interlayers are described throughout the specification, and in the specific instances described above. The polyester film is also described as claimed in the places mentioned above. These claims find support throughout the application, such as in original claims 1 and 5. An example of a GLASS/PVB/PET/PVB/GLASS laminate described in Example 3.

Claims 43-44, have the support mentioned with respect to claim 40. See, e.g., original claims 5 and 9.

Claims 45-55 focus on use of a hardcoat as described at page 6, line 26 – page 7, line 1, page 7, lines 29-32, Example 5, and in original claim 10. Here, please note that the application supports having one or both sides of the polyester coated with the polyallylamine. Example 5, Table 5, at page 16, in the last footnote describes a polyester film that is coated with polyallylamine on both sides which has a hardcoat applied. Glass/plastic laminate are described in the places describing the hardcoat, such as page 1, line 20 *et seq.*, and page 7, lines 29-32.

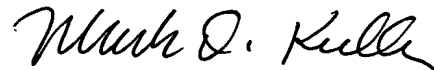
Claim 56 is focused on the laminate where the polyallylamine coating was applied in-line with the polyester film.

Claims 57-59 are directed to a process for producing a laminate as described in the specification and examples. The claim does not recite how the polyester film coated with polyallylamine is prepared, since those steps are carried out separately and are directed to making the film, not the laminate.

Entry and consideration are respectfully requested.

In view of the foregoing, allowance of the above-referenced application is respectfully requested. Should any matters be unresolved by this response, the Examiner is invited to telephone the undersigned at the below-listed direct dial number in order to expedite prosecution.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Mark D. Kuller". The signature is fluid and cursive, with the first name "Mark" being the most prominent.

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Dated: February 21, 2006